

Remarks

Applicant has carefully reviewed the application in light of the December 10, 2008 Office Action. To advance prosecution, Applicant has amended claims 1, 45, and 54. For at least the reasons presented below, Applicant submits that the claims are in condition for allowance. Applicant therefore requests favorable action for this case.

Clerical Objections

The Examiner objects to claim 71 for improperly relating to claim 45. Detailed Action ¶ 6. In particular, the Examiner finds that claim 71 should recite step (f) of claim 45 instead of step (e) due to previous amendments to claim 45. Id. Applicant has amended 71 so that it now recites step (f). Applicant therefore requests the Examiner to withdraw the objection to this claim.

Section 101 Objections

The Examiner objects to claims 1, 45, and 54 under 35 U.S.C. § 101 for failing to recite patentable subject matter. Detailed Action ¶ 7. In particular, the Examiner finds that the claims need to transform subject matter or be tied to another statutory class. Id. Applicant has amended claims 1, 45, and 54 to tie them to another statutory class (i.e., article of manufacture or machine). Applicant therefore requests the Examiner to withdraw the § 101 objection to these claims.

Section 103 Rejections

The Examiner rejects claims 45-49 and 71-73 under 35 U.S.C. § 103(a) as being unpatentable over “Numerical Simulation of Crystallization in Injection Molding” by Zheng et al. (“Zheng”) in view of U.S. Patent No. 6,096,088 issued Yu (“Yu”) and “Thermoviscoelastic Simulation of Thermally and Pressure-Induced Stresses in Injection Molding for the Prediction of Shrinkage and Warpage for Fiber-Reinforced Thermoplastics” by Kennedy et al. (“Kennedy”). Detailed Action ¶ 10. Applicant disagrees.

Claim 45 is an independent claim containing limitations not taught by the attempted combination of Zheng, Yu, and Kennedy. Claim 45, as amended, recites:

A method for performing a structural analysis of a manufactured part, the method comprising:

- (a) providing a process description comprising at least one governing equation;
- (b) obtaining a characterization of a flow of a material based, at least in part, on the process description using one or more processors;
- (c) obtaining a morphological characterization of the material based, at least in part, on the characterization of the flow of the material using the one or more processors;
- (d) predicting a value of a property of the material based, at least in part, on the morphological characterization using the one or more processors, wherein the value of a property of the material is used in the process description in step (b) to characterize flow;
- (e) predicting a value of a property of a product using the morphological characterization, wherein the product is made from the processed material; and
- (f) performing a structural analysis of the product using the predicted value of the property of the product.

The attempted combination of Zheng, Yu, and Kennedy, however, fails to teach “predicting a value of a property of a product using the morphological characterization, wherein the product is made from the processed material” and “performing a structural analysis of the product using the predicted value of the property of the product.” Although the Examiner asserts that Zheng teaches “predicting a value of a property of a product using the morphological characterization, wherein the product is made from the processed material” by calculating stress, Detailed Action, pg. 9, a close inspection of Zheng reveals that it discusses using stress to determine properties during the fluid flow phase. For example, at each time step the Hele-Shaw equation is solved to provide Newtonian kinematics ,which are used to calculate viscoelastic stresses, orientation, and crystallinity. Zheng, pg. 6. For example, the extra stress due to the amorphous phase τ_n is calculated using equation (10), and a stress difference $\Delta\sigma_{13}$ is calculated using equation (26). Thus, Zheng teaches using stress in flow-phase calculations, but does not predict a value of a property of a product made from the processed material.

Applicant notes the Examiner's assertion regarding Fig. 3, Detailed Action, pg. 9, but it is not clear that Fig. 3 uses predicted values of $\Delta\sigma_{13}$ for a product. Note, for example, that Fig. 4 indicates that its values are predicted while Fig. 3 does not. Moreover, the results shown in Fig. 3 are during the packing stage. Thus, the product resulting from the material has not been formed. Zheng therefore fails to teach predicting a value of a property of a product made from the processed material.

Yu and Kennedy also fail to teach predicting a value of a property of a product made from the processed material. Thus, the attempted combination of Zheng, Yu, and Kennedy fails to teach predicting a value of a property of a product made from the processed material, much less performing a structural analysis of the product using the predicted value of the property of the product. Applicant therefore requests the Examiner to withdraw the § 103 rejection of this claim.

Claims 46-49 and 71-73 depend from claim 45 and, hence, contain all of its limitations, which have already been shown to distinguish over the attempted combination of Zheng, Yu, and Kennedy. These claims also contain additional limitations to those recited in claim 45. Because claims 46-49 and 71-73 contain the limitations of claim 45 as well as additional limitations, claims 46-49 and 71-73 also distinguish over the attempted combination of Zheng, Yu, and Kennedy. Applicant therefore requests the Examiner to withdraw the § 103 rejection of these claims.

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Conclusion

Applicant asks that all claims be examined in view of the amendment to the claims.

Please \$130 for the Petition for One-Month Extension of Time and any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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